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ABSTRACT

The purpose of the Meeting Students' Needs in the Multiage Group Environment (MSN) program was to provide an instructional system to meet the needs of elementary school students of differing achievement, age, and grade level who are in the same classroom. The program, for kindergarten through grade six, was characterized by an innovative management system, a procedure for continuous assessment of educational needs and achievement, an emphasis on the development of independent behavior, and the encouragement of parent and community involvement. MSN was evaluated through a procedure that called for the comparison of intended outcomes to actual outcomes. Findings from standardized tests of achievement indicated that students in grades one through four increased their percentile ranks in reading or mathematics or both. Similar gains were not observed for grades five and six. Two project-designed instruments developed to measure independence, self-reliance, and responsibility did not show significant gains, although positive trends were demonstrated. In response to a questionnaire, all teachers reported using some management techniques conducive to the development of independence and self-management in the classroom. (MK)

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DISTRICT OF COLUMBIA PUBLIC SCHOOLS

MEETING STUDENTS' NEEDS IN THE MULTIAGE GROUP ENVIRONMENT

E. S. E. A. TITLE IV-C

Final Evaluation Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA

MEETING STUDENTS' NEEDS IN THE MULTI-AGE GROUP ENVIROMENT

Final Report

1979-1980

Prepared by
Division of Research, Planning and Evaluation

1979-1980

MEETING STUDENTS' NEEDS IN THE MULTI-AGE GROUP ENVIORNMENT

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SUMMARY AND FINDINGS

Title

Meeting Students' Needs in the Multi-Age Group Environment

Project Director

Sheila Ford

Location

Murch, Ross, Shepherd and Stevens Elementary Schools

Target Population

The program was originally written to meet the needs of students in combination classrooms, specifically a 1-2-3 combination. The sample was expanded to include single and combination classes in kindergarten through sixth grades.

Background

The project began at Murch Elementary School where the distribution of the student population each year requires that combination classes be formed. Parents and teachers felt that students' needs could not be adequately met in classes where students were not grouped by chronological age. Research showed, however, that even where students were grouped by age, a large range of abilities was found in any one room. To meet these needs would require a greater emphasis on individualization and competency-based-curriculum. Murch's solution was to work on applying CBC with special management techniques and piloting the program in an extreme multi-age and multi-level environment, a 1-2-3 classroom. During the second year of operation the program was expanded to include other levels. During the third year, the project was enlarged to include classrooms in three additional District of Columbia public schools.

Description of the Project

Through testing and observation of classroom performance, teachers identify individual and group objectives. The objectives are to be met using CBC and teacher-developed materials. Classroom management is accomplished by dividing the class into heterogeneous groups that work individually or in peer tutoring pairs at learning stations designed to help students review and maintain academic skills. After a specified period of time, the students move to another station following a color coded schedule called the Road Map. During this time, the teacher selects from the heterogeneous groups those students with similar skill needs which have been coded on cards using the McBee Key Sort or a similar record keeping system. With such a management plan, it is important that students are taught to be self-reliant and to be able to work independently. Much of the time in the early weeks is spent on developing and maintaining this behavior.

A special characteristic of the program is the amount and variety of parent involvement as volunteer paraprofessionals.

Stated Objectives

A. As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased skills attainment and achievement as measured by the PMT/PRT (90% of the students will reach at least an 80% mastery level) and by the CTBS (post-test percentiles will be significantly higher than pre-tests at the .05 level).

B. As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased independence, self-reliance, and responsibility, as measured by a project-developed observation instrument (post-test scores will be significantly higher than pre-tests at the .05 level).

Evaluation

The evaluation follows the Planning, Monitoring, and Implementation (PMI) Model for Decision-Making which was developed by the Division of Research, Planning and Evaluation, District of Columbia Public Schools.

Findings

1. During a seven month period, project students from whom test scores were available increased their percentile ranks in reading or mathematics, or both, in grades one through four, but not in grades five and six.

2. During the seven month period, gains by months ranged from 4 to 19 in reading and from 6 to 29 in mathematics.

3. For grade two, the grade with the largest number of students with pre- and posttest scores (29) from the three schools in their first year in the project results showed pre-post gains in reading from 63rd to 70th percentile and in mathematics from 50th to 68th percentile. During the 7 month period they showed a 12 month gain in reading and 8 month gain in mathematics.

4. The two project-designed instruments to measure independence, self-reliance and responsibility did not show significant gains, although positive trends were demonstrated. The instruments are still being tested and modified.

5. In response to a questionnaire all teachers reported using some management techniques conducive to the development of independence and self management in the classroom.

BACKGROUND AND PROJECT OBJECTIVES

Introduction

Purpose - The purpose of MEETING STUDENTS' NEEDS IN THE MULTI-AGE GROUP ENVIRONMENT (MSN) is to provide a comprehensive instructional system to meet the needs of students of differing achievement, age, and grade level who are in the same classroom. The program is characterized by an innovative management system, a procedure for continuous assessment of educational needs and achievement, a curriculum based on individual needs, an emphasis on the development of independent behavior, and the encouragement of parent and community involvement.

Need - The need for the project arose originally from the distribution of the Ben W. Murch Elementary School student population from year to year which required the formation of combination classrooms. Groups of faculty and parents met to try to solve the problems. The solution agreed upon was to establish a pilot first-second-third combination classroom that used the CBC system for all academic subjects and employed special management techniques.

History - During the first year of the project, 1977-78, curriculum and management techniques were developed and tested in one combination 1-2-3 classroom at the Murch School. During that year the project was successful in promoting the attainment of knowledge, competencies, and skills in that multi-age group environment.

During the second year of operation, 1978-79, the program was expanded to other single and combination classrooms at Murch and at a non-public school. The management and instructional techniques were further developed and refined, again with successful results.

During the third year of operation, 1979-80, the project was enlarged to include classrooms in four District of Columbia public schools.

Description of the Project

Target Population - There are approximately 420 students participating in the project this year selected by lottery from a pool of students formed by parent request. Project classrooms are located at Murch, Ross, Shepherd and Stevens Elementary Schools.

Staffing - The staff consists of 14 classroom teachers, who are funded by regular budget; a project director, an instructional coordinator, one administrative assistant, and two part-time teacher assistants all of whom are funded by Title IV-C. The paid staff is supplemented by volunteers from the community.

The Meeting Students' Needs Approach

Testing - Using specific content area tests, teachers continually monitor student progress. A battery of diagnostic instruments is administered during the first two weeks of school. This phase is followed by periodic reassessment of the Prescriptive Reading and Mathematics Tests

as well as other criterion based instruments, with a final assessment on both the Comprehensive Test of Basic Skills (CTBS), and the PMT/PRT.

Diagnostic/Prescriptive Teaching - Based on the results of testing and each child's classroom performance, the teachers identify individual and group instructional objectives. The objectives are taught in a competency - based curriculum (CBC) framework.

Materials - CBC materials for reading, mathematics and science are presently in use. In areas where no CBC materials are available, teachers develop or adapt materials to fit the individualized or small group needs.

Learning Stations - Road Maps - In order to manage small groups and individualized instruction, activities of the whole class are carefully planned and coordinated. This is accomplished by dividing the class into heterogeneous groups, each group working at a separate Learning Station. Examples of Learning Stations are: language arts, math, social studies, science, and students' choice where students might be involved in activities such as art, crafts, pleasure reading, and film strip viewing. At the Learning Stations students participate in individualized lessons for review and maintenance of previously taught skills. An enrichment station provides a variety of new assignments in academic areas. The heterogeneous groups of students move from station to station following a color coded schedule called the Road Map.

The process of following the Road Map and using the Learning Stations encourages self-reliance, independence and responsibility. Examples of the students' involvement in their own learning process are: self-recording of individual progress at learning stations; moving from station to station at the sound of a signal from a kitchen timer; and peer tutoring which can involve consulting with each other on assignments or having older students explain difficult problems to younger ones. Perhaps most significant is the fact that the students are engaged in their activities without direct teacher supervision.

Skill Grouping - With the students using the Learning Stations independently, the teacher is free for small group instruction. The teacher selects from the heterogeneous groups, those students with similar skill needs. In most cases the selection is accomplished through the use of previously coded cards indicating skill mastery in academic areas. The procedure is called the McBee Key Sort System. After the students are presented with a lesson, they return to the Road Map/Learning Station activities and a new group, selected by the McBee system, is called to the teacher-directed activity center.

Staff Development - During the present school year, teachers were involved in workshops in September, 1979 and March, 1980. Other meetings have been held by the project director to assist teachers new to the project. Much of the Instructional Coordinator's time has been spent in the classrooms providing technical assistance.

Parent Involvement - A special characteristic of the MSN project is the amount and variety of parent involvement. The parents' participation in the project effectively supplements the teachers' time and flexibility in the classroom. As volunteer para professionals, they receive training and serve as part-time teacher aides. They also serve to enrich the curriculum by sharing skills such as cooking, carpentry and drama.

Stated Objectives

A. As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased skills attainment and achievement as measured by the PMT/PRT (90% of the students will reach at least an 80% mastery level) and by the CTBS (post-test percentiles will be significantly higher than pre-tests at the .05 level).

B. As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased independence, self-reliance, and responsibility, as measured by a project-developed observation instrument (post-test scores will be significantly higher than pre-tests at the .05 level).

EXTERNAL EVALUATION DESIGN

The evaluation follows the Planning, Monitoring, and Implementation (PMI) Model for Decision-Making which was developed by the Division of Research, Planning and Evaluation, District of Columbia Public Schools. The evaluation design consisted of the intended inputs, processes and outputs. The interim report related agreements or discrepancies between intended and observed inputs and processes. This final report includes the interim report data, the agreements and discrepancies between intended and observed outcomes with supporting data in the Appendix, a summary of performance agreement and analysis/conclusions/implications, for each objective. (See Appendix A.)

RESULTS

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

ING STUDENTS' NEEDS IN THE
I-AGE GROUP ENVIRONMENT

PART I

: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

ctive: A - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased skills attainment and achievement as measured by the PMT/PRT (90% of the students will reach at least an 80% mastery level) and by the CTBS (post-test percentile ranks will be higher than pre-test percentile ranks).

INPUTS

INTENDED	MONITORING	OBSERVED
Structured open classroom	Agreement	1. Room arrangements and student and teacher behavior demonstrated that the classroom environment is in the structured open classroom mode.
Multi-age grouping	Agreement	2. Multi-age grouping was in evidence.
Multi-level grouping	Agreement	3. Multi-level grouping was in evidence.
CBC materials in reading	Agreement	4. CBC materials in reading were available.
CBC materials in math	Discrepancy	5. Not all CBC math materials arrived.
CBC materials in science	Discrepancy	6. Not all CBC science materials arrived.
McBee Key Sort Cards	Agreement	7. All teachers had the McBee Key Sort material.
Parents who have volunteered to help	Discrepancy	8. One school had adequate parent help at all levels; one had parent help at grades 1-3 but not 5 and 6; one had minimum parent help; and one had none at all.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART II

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PROCESSES

INTENDED	MONITORING	OBSERVED
Teachers will use diagnostic/ prescriptive strategies	Agreement	1. Teachers used diagnostic/ prescriptive strategies. An analysis of the instructional components of the MSN project was based on observation and on results of a questionnaire (see Appendixes B and C).
Parents will help with testing and tutoring.	Discrepancy	2. Parents helped with testing and tutoring in some classes and not in others; of the parents responding to a questionnaire, 61% have served as volunteers (see Appendixes D and E).
Peer tutoring will take place.	Agreement	3. Peer tutoring took place in all classes.
Teachers will use a manual data retrieval system.	Agreement	4. Teachers used a manual retrieval system to determine which students needed help in the same skills.
Teachers will work with small groups of students all needing help in the same skill	Agreement	5. Teachers worked with small groups of students on similar skills development.
Teachers will use the CBC model in their instruction.	Agreement	6. Teachers used the CBC model in their instruction.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART II
(continued)

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PROCESSES

INTENDED	MONITORING	OBSERVED
. Teachers and parents will attend workshops.	Agreement	7. Teachers and parents attended workshops. One was held in September, 1979 and another in March, 1980.
. Students will be tested in the fall and in the spring, with post-tests scored and analyzed during the month of May, 1980.	Agreement	8. Pre-testing was completed in the fall of 1979 and post-testing in May, 1980.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART III

l: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

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OUTCOMES

INTENDED	MONITORING	OBSERVED
Post-test percentiles on CTBS Reading and mathematics as measured by averaging expanded standard scores and converting the means to percentiles will be higher than pre-test percentiles.	Agreement	1. In a sampling of 128 students representing all of the students for whom there were pre- and post-test scores in the four project schools, students in grades 1 through 4 increased their percentile ranks in one or both of the subjects (reading and math) while those in grades 5 and 6 did not show the increase. (See Appendix F.) During the seven month period between pre- and post-testing, gains by month ranged from 4 to 19 in reading and from 6 to 29 in mathematics. For grade two, the grade with the largest number of students with pre-post test scores (29) from the three schools in their first year in the project, the students increased their percentile rank in reading from 63rd to 70th and in mathematics from 50th to 68th. During the seven month period between pre- and posttesting they showed a 12 month gain in reading and 8 in mathematics. (See Appendix F.)
Ninety percent of the project stu-students will reach at least an 80% mastery level on the PRT/PMT.	*	2. Sufficient data were not provided to make an accurate assessment.
nable to evaluate		

PLANNING, MONITORING AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART IV

Goal: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

Objective: A - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased skills attainment and achievement as measured by the PMT/PRT (90% of the students will reach at least an 80% mastery level) and by the CTBS (post-test percentile ranks will be higher than pre-test percentile ranks).

OBSERVED INPUTS/OBSERVED PROCESSES

Having a structured, open classroom, multi-age and multi-level grouping and CBC materials in reading, math and science allowed teachers to carry out the program using diagnostic/prescriptive strategies and the CBC Model in their instruction. Using the McBee Sort Cards and/or other manual data retrieval systems, teachers were able to group students for similar skills development. In the schools which had adequate parent volunteer help available, parents assisted in testing and tutoring. Peer tutoring took place in all classes. Teachers and parents attended workshops.

OBSERVED PROCESSES/OBSERVED OUTCOMES

Preceding and following the Meeting Students' Needs procedures which included diagnostic testing, prescriptive teaching, flexible skill grouping, and tutoring by peers and parent volunteers to some extent, students were tested on the CTBS and the PMT/PRT. Although all processes were in place except one, attainment of outcome was mixed. Results showed that percentile gains in mathematics occurred in four of the six grades sampled and in reading in two of them.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART V

Goal: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

Objectives: A - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased skills attainment and achievement as measured by the PMT/PRT (90% of the students will reach at least an 80% mastery level) and by the CTBS (post-test percentile ranks will be higher than pre-test percentile ranks).

ANALYSES/CONCLUSIONS/IMPLICATIONS

The project was enlarged and replicated at three additional schools to see if the techniques would continue to have a positive effect on achievement in a variety of environments. Ranking on national norms increased in reading and for mathematics in the first four grades but not in grades 5 or 6. Although pre-post testing must be interpreted cautiously because of possible internal and external sources of invalidity, one can conclude that the project did have a positive effect on the achievement of a wide variety of students. Objective A was met for grade 1 in mathematics, grade 3 in mathematics, and grade 4 in both reading and mathematics.

DECISIONS

This report will be forwarded to the Project Director, and School Superintendent, the School Board, and Grants' Administration to aid them in their decision-making concerning this project.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART I

al: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

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INPUTS

INTENDED	MONITORING	OBSERVED
. Management System with Learning Stations	Agreement	1. All classes set up Learning Stations.
. Management System with Road Maps to Learning Stations	Agreement	2. All classes set up a management system with the Road Map to Learning Stations concept.
. McBee Key Sort Cards for skill grouping	Agreement	3. All classes had McBee Key Sort Cards, cards for skill grouping.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART II

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PROCESSES

INTENDED	MONITORING	OBSERVED
1. Teachers will explain to students procedures such as the Road Map system, requiring self-reliance.	Agreement	1. Teachers explained procedures requiring self-reliance to the students.
2. Teachers will provide productive activities for students when they are not receiving direct instruction.	Agreement	2. Teachers provided productive activities for students when they were not receiving direct instruction.
3. Teachers and parents will attend workshops to rethink and modify their conceptions of the process by which children learn.	Agreement	3. Teachers and parents attended workshops and discussion meetings.
4. Students will receive small group and individualized instruction.	Agreement	4. Students received small group and individualized instruction.
5. Where possible, students will record own progress.	Discrepancy	5. Students recorded their own progress in all but three classrooms.
6. While the teacher is working with skill groups, the teacher is off-limits to the rest of the students and they will seek help only from other students or other adults in the room.	Agreement	6. Students did not interrupt the teacher working with skill groups but sought help from peers or adult volunteers.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART II
(continued)

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PROCESSES

INTENDED	MONITORING	OBSERVED
7. Peer tutoring will take place.	Agreement	7. Peer tutoring took place in all classes.
8. Parents will help with tutoring and program enrichment.	Discrepancy	8. Parents helped with tutoring and program enrichment in some, but not all of the classes.
9. Self-Reliance, Independence, Responsibility Scales will be completed in the fall and spring on a sampling of students.	Agreement	9. The fall sampling of the S.I.R. Scales to measure Self-Reliance, Independence, and Responsibility completed. Post-observations were done in the spring.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART III

Goal: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

Objective: B - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased independence, self-reliance, and responsibility, as measured by a project-developed observation instrument (post-test scores will be significantly higher than pre-tests at the .05 level).

OUTCOMES

INTENDED	MONITORING	OBSERVED
1. A statistically significant increase will be shown from pre- to post- on the S.I.R. Observation Scale on a sampling of students.	*	1. There was no significant difference between pre- and post- on the behavioral categories (self-directed, cooperative, off-task) although there were trends in the last two. (See Appendix G.) This project-designed instrument is still being tested and standardized. (See Appendixes H and I.)
2. A teacher questionnaire and an observation checklist will show that 100% of the teachers are using management techniques conducive to the development of independence and self-management in the classroom.	Agreement	2. Teachers' responses to a questionnaire showed that 100% of the teachers used learning stations and a record keeping system. Peer tutoring occurred with 79% of the teachers, while 93% reported having opportunities for self-reliant/ independent student learning. (See Appendix J.)
3. A student questionnaire will show that 90% of the children consider themselves able to work independently during the Road Map time.	*	3. The student questionnaire did not directly ask for students' views on their ability to work independently. Rather, it attempted to answer the question in a behavioral way. The questionnaire, designed by the evaluation unit, is still in the developmental phase, and will be modified during the next year. (See Appendix K.)

* Appropriate data not available

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART IV

Goal: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

Objective: B - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased independence, self-reliance, and responsibility, as measured by a project-developed observation instrument (post-test scores will be significantly higher than pre-tests at the .05 level).

PERFORMANCE AGREEMENT

OBSERVED INPUTS/OBSERVED PROCESSES

Using a class management system, with Learning Stations and a color-coded (for each group) Road Map to the Learning Station, and having materials for skill grouping, teachers were able to provide activities leading to the development of independence, self-reliance, and responsibility. This involved explaining procedures such as the Road Map System, teacher's being off limits when working with skills groups, engaging in the productive activities provided, recording own progress where possible, peer tutoring and parent tutoring.

OBSERVED PROCESSES/OBSERVED OUTCOMES

The processes such as teachers' explaining the Meeting Students' Needs system to the students, and then allowing and encouraging them to work independently at the stations, with peer and parent tutoring when appropriate, led to students' having opportunities to develop self-reliant/independent behavior, as reported by the teachers. Assessment instruments other than teacher questionnaires are still in the design stage and therefore were not able to provide appropriate data.

PLANNING, MONITORING, AND IMPLEMENTATION (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

PART V

Goal: To promote the attainment of knowledge, competencies, and skills in a multi-age group environment and to test the concept in other socioeconomic and geographic areas within the District.

Objective: B - As a result of the open classroom, multi-age and multi-level groupings, diagnostic/prescriptive teaching materials in reading and math, parental involvement, peer tutoring, and manual data retrieval system, project students will demonstrate increased independence, self-reliance, and responsibility, as measured by a project-developed observation instrument (post-test scores will be significantly higher than pre-tests at the .05 level).

ANALYSES/CONCLUSIONS/IMPLICATIONS

Failure to reach significance on the pre-post observation instrument and not reaching the set criteria level on the student questionnaire appear to be related to the instruments which are still in the developmental stage rather than the inputs and processes leading to the outcomes. Although the objective cannot be considered met as stated, the students apparently have learned some new independent behavior, as suggested by the trends of the pre-post testing and the achievement levels attained. The teachers' use of management techniques conducive to the development of the desired traits was reported. There will be continued revision and refinement of the instruments.

DECISIONS

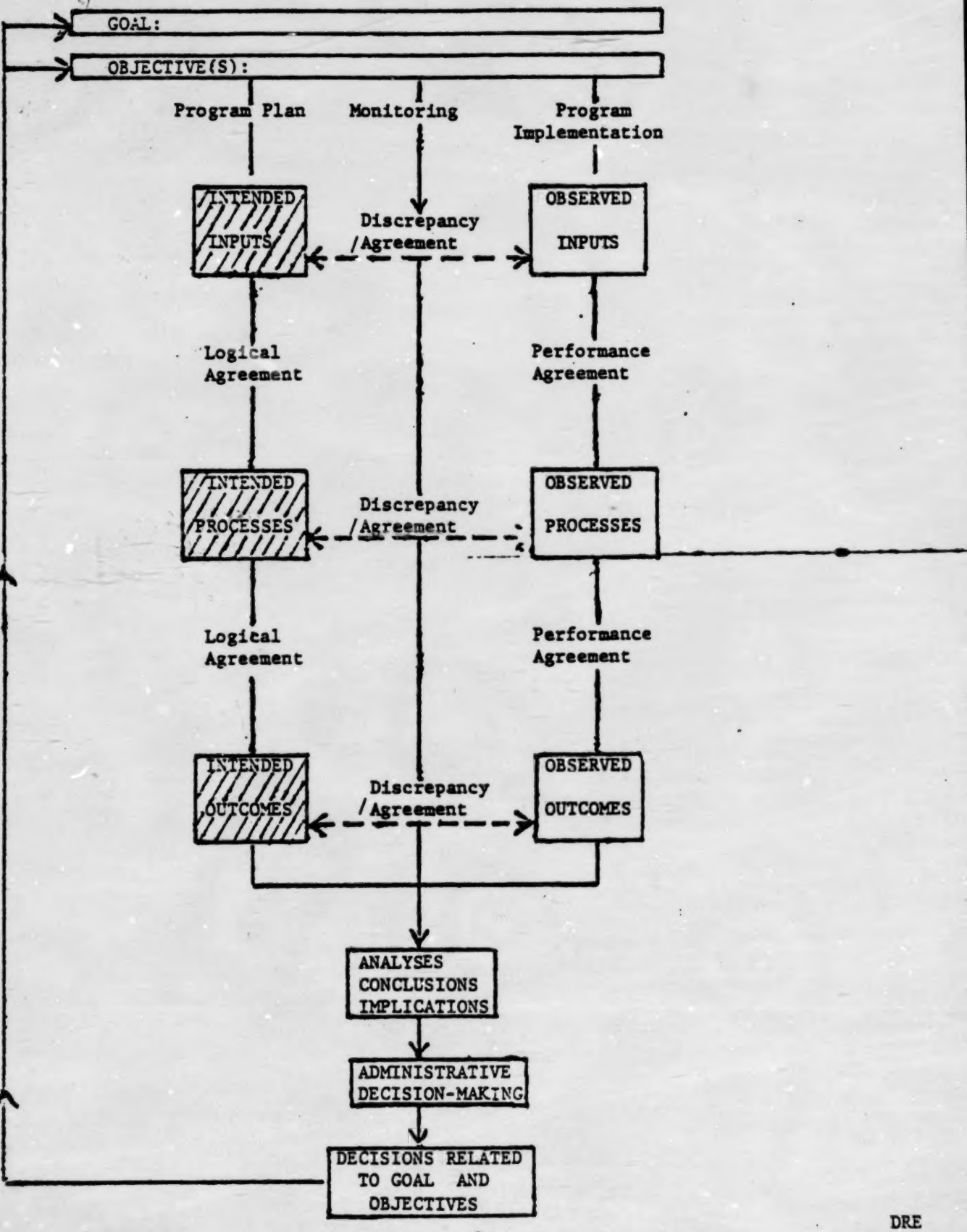
This report will be forwarded to the Project Director, the School Superintendent, the School Board, and Grants' Administration to aid them in their decision-making concerning this project.

APPENDIX A

Evaluation Model Schematic

Appendix

EVALUATION MODEL SCHEMATIC



APPENDIX B

Teacher Questionnaire

TEACHER QUESTIONNAIRE

Title IV-C Evaluation Unit
Division of Research and Evaluation
District of Columbia Public Schools

Meeting Students' Needs in the Multi-Age Environment

1. Please check your grade level (or levels, if you have a combination class) and indicate the number of students represented.

Grade	Number	Grade	Number
K ☐	_____	4 ☐	_____
1 ☐	_____	5 ☐	_____
2 ☐	_____	6 ☐	_____
3 ☐	_____		

2. Please check all of the following instructional practices that are part of your classroom routine.

   a. The math drill kit ☐
   b. The spelling package ☐
   c. The "Book Talks" program ☐

3. Please check all of the following practical life experiences that are part of your classroom curriculum.

   a. Cooking ☐
   b. Carpentry ☐
   c. Field trips ☐
   d. Other (please specify) ☐

   _____

4. Please check the test(s) you have used or developed during the school year that measure competencies not measured by the PRT, PMT, and CTBS (check as many as apply).

a. Dolch Word List ☐
b. Graded Word List ☐
c. I.R.I. ☐
d. Morrison McCall Spelling Test ☐
e. Random House Pre-Post Test ☐
f. SRA Book Placement Test ☐
g. SRA Chapter Placement Test ☐
h. Weekly Math Drill Test ☐
i. Weekly Spelling Test ☐
j. Other (please specify) ☐

_____

5. Which of the following are used in your classroom management system?

a. Learning stations Yes ☐ No ☐
If yes, check those that apply.

(1) Art ☐
(2) Enrichment (specify) ☐
_____
(3) Handwriting ☐
(4) Language Arts ☐
(5) Math ☐
(6) Phonovisual ☐
(7) Reading Comprehension ☐
(8) Rhymes ☐
(9) Science ☐
(10) Social Studies ☐
(11) Spelling ☐
(12) Other (specify) ☐
_____

b. Record Keeping System Yes ☐ No ☐
If yes, check those that apply.

(1) McBee Key Sort System ☐
(2) Student check-off list ☐
(3) Student folders ☐
(4) Other (specify) ☐
_____

c. Peer tutoring ☐ Yes ☐ No

d. Self-reliant/independent student learning ☐ Yes ☐ No
If yes, please check those that apply.

(1) Following oral and written directions ☐

(2) After completion of an assignment, continuing with next ☐

(3) Knowing what to do after completing assignment ☐

(4) Obtaining and returning material on one's own ☐

(5) Other (specify) ☐

_____

6. Please check all of the following which you have attended and indicate the number of times

	Yes	No	Number
a. Classroom gathering such as fall picnic or party	☐	☐	_____
b. Five-day summer workshop	☐	☐	_____
c. Classroom parent meetings	☐	☐	_____
d. School parent meetings	☐	☐	_____

7. Have you used parent volunteers in your classroom? ☐ Yes ☐ No
If yes, check the ways you have used them.

a. Art ☐
b. Cooking ☐
c. Correcting Papers ☐
d. Helping on Field Trips ☐
e. Music ☐
f. Preparing Dittoes ☐
g. Tutoring ☐
h. Typing ☐
i. Other (specify) ☐

_____

8. Do you inform parents of child progress? Yes ☐ No ☐
If yes, please check the ways.

a. Conferences ☐
b. Informal meetings ☐
c. List of skills sent home ☐
d. Telephone ☐
e. Weekly folders sent home ☐
f. Writing notes ☐
g. Other (specify) ☐ _____

9. Comments: _____

_____

_____

_____

_____

_____

4/28/80

APPENDIX C

Teacher Questionnaire Results-
Instructional Component

Teacher Questionnaire Results-
Instructional Component

An analysis of the instructional component of the Meeting Students' Needs (MSN) project was based on observation and on teacher responses to a questionnaire.

Questionnaires were completed by fourteen teachers. Question 1 asked, "What grade levels are represented in your classroom, i.e. how many students are first graders, how many are second graders, etc.?" Respondents included teachers of all levels, K through 6. (See Table I.)

TABLE I

Distribution of Grades Taught
by Questionnaire Respondents

Number of Teachers	Grades Included in One Class	Number of Students
2	Kindergarten	56
5	1	31
	2	51
	3	48
1	1	22
	2	6
2	2	18
	3	29
1	4	30
1	4	12
	5	18
2	5	31
	6	23
TOTALS: 14	K-6	375

As can be seen in Table I, classes represented by questionnaire respondents contained one, two and three grades, with the largest sample being from the five 1-2-3 combination classes.

Questions 2 and 3 dealt with the inclusion of certain instructional practices and practical life experiences. (See Table II.)

TABLE II

Instructional Practices Used

	Yes		No		No Response	
	Number	Percent	Number	Percent	Number	Percent
Math Drill Kit	6	43%	8	57%	0	-
Spelling Package	11	79%	3	21%	0	-
"Book Talks" Program	7	50%	7	50%	0	-
Cooking	9	64%	3	21%	2	15%
Carpentry	3	21%	9	64%	2	15%
Field Trips	13	93%	1	7%	0	-
Other	3	21%	9	64%	2	15%

The spelling package was the most frequently indicated instructional practice. Field trips and cooking were the most common sources of practical life experiences.

Question 4 was concerned with tests other then the PRT, PMT and CTBS that were used/developed by teachers. Table III lists the instruments and summarizes the number of teachers mentioning that test.

TABLE III

Additional Tests Used or Developed

Name of Instrument	Respondents Listing Instrument	
	Number	Percent
Dolch Word List	9	64%
Graded Word List	11	79%
I.R.I.	9	64%
Morrison McCall Spelling Test	9	64%
Random House Pre-Post Test	11	64%
SRA Book Placement Test	6	43%
SRA Chapter Placement Test	5	36%
Weekly Math Drill Test	7	50%
Weekly Spelling Test	12	86%
Other	2	14%

Thus, a variety of evaluation materials was used to measure student achievement.

Item 5 refers to classroom management. A summary of these responses will be included in the Section on Teacher Efforts to Develop Self-Reliance.

Teacher involvement outside the classroom was also important to the project. Results from question 6 which asked teachers to check which activities they had attended during the school year are summarized in Table IV.

TABLE IV

Type of Activity	Yes	
	Number	Percent
Classroom gatherings/picnics	11	79%
Summer workshop	13	93%
Classroom parent meetings	7	50%
School parent meetings	14	100%

All but one teacher who responded to the questionnaire reported attending a five-day summer workshop and all teachers reported attending school parent meetings.

Involvement of parents also plays an important part in the project. All teachers responding to questions 7 and 8 indicated that they had used parent volunteers in the classroom and had kept parents informed of their child's progress. Results are presented in Table V.

TABLE V

Teachers' Perception of Parent Involvement

Question	Yes		No	
	Number	Percent	Number	Percent
Have you used parent volunteers in the classroom?	14	100%	0	-
Do you inform parents of child progress?	14	100%	0	-

Teachers used parent volunteers to correct papers, help on field trips, tutor groups of students, type material, and help with cooking or art projects. Teachers also informed parents of child progress using a variety of methods including conferences, telephone conversations, sending work folders home, and informal meetings.

Because the project spans six grades, some variance of application across these levels might be expected. Comparing the responses of 1st, 2nd, and 3rd grade teachers to responses of 4th, 5th, and 6th grade teachers revealed some differences. Teachers in the lower levels provided art and handwriting learning stations more frequently than teachers in the upper levels. Given the characteristics of the learners at the lower level, this seems appropriate. Upper level teachers tended to use parent volunteers for cooking and correcting papers somewhat more than teachers in the lower levels. Interestingly, teachers in the lower levels relied on informal meetings to inform parents of child progress more than teachers in the upper levels. Also, teachers in the lower levels tended to send skill work home with the child to keep parents informed more than did teachers in the upper levels. The differences in application of the program that were described appear to be differences attributable to the characteristics of the grade taught and do not appear to be a significant departure from the practices and procedures of the project.

APPENDIX D

Parent Questionnaire

Division of Research, Planning and Evaluation
District of Columbia Public Schools

MEETING STUDENTS' NEEDS (MSN PROJECT)
TITLE IV-C
Parent Questionnaire

Please check YES or NO for each of the following:

1. Have you served as a paraprofessional or volunteer in the project? YES____ NO____

2. Have you been able to share a practical life skill such as carpentry, cooking, poetry, or art with any project classroom? YES____ NO____

3. Have you attended any project workshops, e.g. summer workshops, night workshops? YES____ NO____

4. Regarding the project Newsletter, have you found it useful? YES____ NO____

5. Have you attended any of the following meetings:

   a.) Home and School Association Meeting? YES____ NO____

   b.) Project parent meeting, e.g., family gathering, picnics? YES____ NO____

   c.) Neighborhood discussion meeting concerning the project? YES____ NO____

6. If you would like to add any comments, please use the space below.

APPENDIX E

Parent Questionnaire Results

Parent Questionnaire Results

Parent Questionnaire - In order to assess the parent involvement component of the Meeting Students Needs (MSN) project, questionnaires were sent to parents of children participating in the project. Of the 226 forms sent home, 36 were returned representing 16% of those in the project.

Question 1 inquired about parents' direct involvement with the classroom as a paraprofessional or volunteer while question 2 asked about parent participation in the classroom by introducing a practical life skill such as carpentry, cooking, or art. Results of these two questions are presented in Table VI.

TABLE VI

Parent Participation in the Classroom

	Yes		No		No Response	
	No.	%	No.	%	No.	%
Have you served as a paraprofessional or volunteer?	22	61%	14	39%	0	-
Have you been able to share a practical life skill?	13	36%	23	64%	0	-

Two-thirds of the respondents have served directly in the classroom, and one-third shared a practical life skill.

Question 3 sought information about attendance at the workshops offered by the MSN project. Fourteen of the respondents or 39% reported that they had attended either summer or evening workshops, 20 or 56% reported that they had not attended workshops and 2 or 6% gave no response.

Because information exchange can be another form of involvement, question 4 asked if parents found the project Newsletter helpful. Twenty-seven or 75% indicated that the Newsletter was helpful while 4 individuals or 11% reported that it was not useful. Five individuals gave no response.

Throughout the school year various groups met to discuss issues concerning the project and schools involved with the project. Question 5 asked parents if they had attended any of the meetings. The results are presented in Table VII.

TABLE VII

Parent Attendance at Meetings

Have you attended any of the following meetings?	Yes		No		No Response	
	No.	%	No.	%	No.	%
Home and School Association Meetings	33	83%	6	17%	0	-
Project Parent Meetings	26	72%	9	25%	1	3%
Neighborhood Discussion Meetings	14	39%	18	50%	4	11%

Question 6 offered parents the opportunity to comment on the project. Most comments were favorable and included such responses:

"Enormously useful and successful project"

"A good learning technique - kids are excited by their own progress"

"Thanks for my child's great love of learning"

"Favorably impressed with program and the workshop I attended"

Some respondents noted the teachers' impact:

"Teachers make the program work"

"The teacher matters the most (more than the ideas on which the project is built)"

Some respondents indicated their lack of involvement:

"I have received little information-want to become involved next year"

"Never saw a project Newsletter, never informed of events"

The majority of responses could accurately be characterized as being positive in their view of the project and of student progress.

APPENDIX F

Results of the CTBS

Results of CTBS from a Sampling of Meeting Students Needs Students, Grades 1-6

N=128*

Number in Sampling	Grade Level	Subject	Pre-Test, Fall 1979 Mean Expanded Standard Score	Grade Equivalent	Percentile	Post-Test, Spring 1979 Mean Expanded Standard Score	Grade Equivalent	Percentile
22	1	Reading	237.45	1.5	**66th	278.27	1.9	63rd
22	1	Mathematics	237.95	1.4	**53rd	287.45	2.2	***78th
40	2	Reading	321.05	2.6	67th	380.05	3.7	***80th
41	2	Mathematics	293.49	2.3	61st	338.76	3.2	***76th
18	3	Reading	429.11	4.9	88th	451.94	5.6	84th
18	3	Mathematics	361.56	3.7	73rd	403.94	5.0	***77th
5	4	Reading	438.80	5.2	70th	493.20	6.9	***99th
5	4	Mathematics	372.60	4.0	47th	459.40	6.5	***94th
21	5	Reading	451.48	5.6	58th	469.95	6.2	55th
20	5	Mathematics	426.50	5.5	59th	450.60	6.2	59th
21	6	Reading	451.48	5.6	58th	469.95	6.2	55th
20	6	Mathematics	426.50	5.5	59th	450.60	6.2	59th

*Students in the sample came from all four project schools, a 30% sampling, which includes all students for whom pre- and posttest results were available on the C.T.B.S.

**Based on mid-year norms since pretests were administered in December

***Increase in percentile pre- to posttesting

Results of CTBS from a Sampling of Second Graders from Three Schools in Their First Year in the Project

Number in Sampling	Subject	Pre-Test, Fall 1979 Mean Expanded Standard Score	Grade Equivalent	Pecentile	Post-Test, Spring 1979 Mean Expanded Standard Score	Grade Equivalent	Percentile
28	Reading	315.14	2.4	63rd	366.46	3.4	70th
29	Mathematics	328.41	2.2	50th	328.41	3.0	68th

APPENDIX G

Pre-Post Means on the Self-Reliance Observation Instrument

N=21

Pre-Post Means on the Self-Reliance Observation Instrument*

	Type of Behavior		
	Self Directed	Cooperative	Off-Task
Mean Pretest	24.48	8.62	6.90
Mean Posttest	24.62	9.86	5.52

*Differences not significant

APPENDIX H

Observation Format

Self-reliant/Independent Student Behavior Rating Form

Name_____ Date_____ Time_____ Teacher_____

Male _____ Female_____ Age_____ Rating 1 2 3 4

Behavior	1	2	3	4	5	6	7	8	9	10	Total
Self-directed											
Cooperative											
Off Task											
Peer tutoring											
Onlooking											
Disruptive											
Adult Presence											

Comments: (include location)

APPENDIX I

Standardization Data on Project-Developed Instrument to Measure Self-Reliant/Independent Behavior

Self-Reliant/Independent Behavior Observation Scale

In order to measure changes in self-reliant and independent behavior a project-developed observation instrument was used to record student behavior. The observation scale combined elements of both a category and a sign system with three mutually exclusive and exhaustive categories of student behavior and four additional descriptors which further characterized the observed behavior. These criteria were organized into a time interval format that required observers to: a) assign observable behaviors to the predefined categories as they occur; and b) mark each descriptor that occurred at least once during a given time interval.

Observers were trained to discriminate between clearly defined categories of behavior that were identified as representing both self-reliant and non-self-reliant behavior. Intra-observer agreement coefficients were established at .90 before actual data collection began and were maintained through periodic checks during both pre- and post-data collection. Another source of error variance, variability of the object of observation, was examined using analysis of variance to estimate reliability of the measurements from the observations. The obtained r^2 value of .85 indicated stability of the behavior being observed over time. Validity estimates were made using the Spearman Rank Order Correlation (rho) with teacher ranking of students and frequency of independent behavior on the observation scale as the two sets of rank ordered data. Rho values of +.51 for the pre-test and +.49 for the post-test show a positive correlation between teacher judgments of independent behavior and judgments of observers using the observation scale.

Data collection took place during a six week period in October and November of 1979 and May and June of 1980. Twenty-one 1st, 2nd and 3rd grade students were observed on a random schedule for 4 five-minute periods during both the pre and post-test. Thus, eight 5 minute samples of behavior were collected for each student. Given an r^2 value of .85 indicating stability of behavior being observed, this schedule enhances reliability through a more representative sampling of occasions, each of short duration.

An examination of the data showed that the descriptors (peer tutoring, descriptions, on-looking, and teacher presence) occurred with insufficient frequency to be treated statistically. This information was made available as feedback to teachers. The results of an analysis of variance for repeated measures showed no significant F values of any of the three behavioral categories, self-directed, cooperative, and off task. However, a trend in the means of categories in the direction of increased cooperative behavior and decreased off task behavior was noted.

A number of factors may have contributed to the lack of statistical significance. The first set of factors is related to the subjects. The students observed had already been exposed to the MSN program and may have reached a plateau of independence and self-reliance from which there could be but small increase. Several of the students had been in the program the previous year. The sample size, just 21 students, may have been too small to show any appreciable change. Another set of factors has to do with the instrument. The observation system employed may not be as sensitive to the identified behaviors as it could be. Refinement of categories to reflect actual classroom conditions and a weighting system to give emphasis to more relevant behaviors may result in a more sensitive and precise instrument. The +.50 correlation with teacher rankings of self-reliance indicates some movement in that direction.

A third set of factors has to do with the statistical analysis of the data. It has been suggested that multiple regression analysis of variance procedures may be more suited to the data produced by a repeated measures experimental design. A revision of methodology to make use of such an analysis may enhance the chances for detecting change.

In addition to the above factors, further work should be done in locating a standardized instrument that measures self-reliance. Also, direct intervention by teachers instructing students about self-reliance may produce more marked increases in such behavior. These and many other considerations will be examined as the project moves from a pilot phase of self-reliance monitoring to a phase of wider application.

APPENDIX J

Teacher Questionnaire Results-
Management Techniques Used
in the Classroom

Teacher Questionnaire Results-
Management Techniques Used in the Classroom

Questionnaire Item	Technique	Number of Respondents Using the Technique	Percent of Respondents Using the Technique
5a	Learning Stations	14	100%
5b	Record Keeping System	14	100%
5c	Peer Tutoring	11	79%
5d	Self-Reliant/Independent Student Learning Opportunities	13	93%

Learning stations included topics such as math, science, spelling, and language arts. The most frequently used system of record keeping was student folders followed by a student check-off list, and the McBee Sort System. All teachers reported that they included self-reliant/independent student learning as a part of the classroom management system with a particular emphasis on instruction about knowing what to do after completing an assignment and obtaining and returning material on one's own.

APPENDIX K

Results of a Student Questionnaire
to Measure Self-Reliant Behavior

Results of A Student Questionnaire
to Measure Self-Reliant Behavior

1. What do you do when your teacher is working with another group and you need some help with your work?

	Number	Percent
a. Wait until the teacher is finished.	17	22%
*b. Ask another student for help.	56	73%
c. Go to the teacher and ask for help.	4	5%

2. What do you do when your teacher is working with another group and you have finished with the paper you were working on?

a. Ask the teacher what to do next.	7	9%
b. Wait until the teacher is finished.	10	13%
*c. Find something else to work on.	60	78%

3. What do you do when you have finished taking a practice test?

*a. Correct the test.	9	12%
b. Give the test to the teacher to correct.	10	13%
c. Wait until the teacher says what to do.	58	75%

A total of 77 students in grades 1-5 completed the questionnaire. Items marked with an asterisk indicate the response that teachers selected as being characteristic of a self-reliant student. Most of the students chose the identified self-reliant response for the first two situations. This was not the case for the third situation where 75% of the students chose response #3. This may be partially explained if the data are separated into responses for two groups, with 1st, 2nd and 3rd graders as one group and 4th and 5th graders as the other group. The results of this reorganization of the data follow.

1. What do you do when your teacher is working with another group and you need some help with your work?

	Grades 1-3		Grades 4-5	
	#	%	#	%
a. Wait until the teacher is finished.	8	36%	9	16%
b. Ask another student for help.	10	46%	46	84%
c. Go to the teacher and ask for help.	4	18%	0	-

2. What do you do when your teacher is working with another group and you have finished with the paper you were working on?

a. Ask the teacher what to do next.	6	28%	1	2%
b. Wait until the teacher is finished.	8	36%	2	4%
c. Find something else to work on.	8	36%	52	94%

3. What do you do when you have finished taking a practice test?

a. Correct the test.	6	28%	3	5%
b. Give the test to the teacher to correct.	7	32%	3	5%
c. Wait until the teacher says what to do.	9	40%	49	90%

Researchers found that the practice test mentioned in the third situation was a specific tool with procedures prescribed for students to self-correct the tests. Apparently this test was referred to differently by 4th and 5th graders. Had the word "pretest" been used, they might have responded differently. Fourth and 5th grade students unfamiliar with the term "practice test" might not be expected to correct their own tests. This may account for the large percentage of 4th and 5th grade students responding to the third choice for the third situation instead of the designated self-reliant choice. Misinterperting the vocabulary would invalidate the question. From the above table, it can be seen that the responses of 1st, 2nd and 3rd graders to this situation show no clear choice either. In fact responses to all three situations indicate no clear preference for the self-reliant choice by 1st, 2nd and 3rd graders. This may be due to the relatively small sample size (N=22 1-3 graders), the lack of effectiveness of the alternate picture form of the questionnaire, or some maturational variables as yet not identified by the participants of the project.